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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,177

10/12/2006

Seiichi Okuda

KUD-005

1744

32628 7590 12/22/2008
KANESAKA BERNER AND PARTNERS LLP
1700 DIAGONAL RD
SUITE 310
ALEXANDRIA, VA 22314-2848

EXAMINER

MCLAREN, STEPHANIE D

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

12/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,177	Applicant(s) OKUDA ET AL.	
	Examiner STEPHANIE MCLAREN	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/12/06, 6/9/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-7, 9-12 & 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoshi et al. (JP 11-132582, translation).

With regards to claim 1, Satoshi discloses: An air-refrigerant cooling apparatus comprising: a compressor compressing refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12); and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1).

With regards to claim 2, Satoshi discloses: a heat exchanger bypass pipe bypassing said heat exchanger to introduce said refrigerant from said compressor to said expansion turbine (in one embodiment, see fig. 2).

With regards to claim 3, Satoshi discloses: a device measuring a pressure in said defroster (pg. 17, paragraph 24, line 1-5).

With regards to claim 4, Satoshi discloses: a defroster drying mechanism exchanging moisture-including air within said defroster with external air (in that moisture-including air is dried and the moisture inherently replaced with external air during the draining process).

6. The air-refrigerant cooling apparatus according to claim 4, wherein said defroster drying mechanism includes: a suction pipe disposed at a position experiencing a relatively low pressure within a pipe system provided for said air-refrigerant cooling apparatus to communicate with the outside of said pipe system (first air circuit, pg. 18, paragraph 26, line 9-11), and a discharge pipe disposed at a position experiencing a relatively high pressure within said pipe system to communicate with the outside of said pipe system (drain, 21).

With regards to claim 7, Satoshi discloses: the air-refrigerant cooling apparatus comprising: a compressor compressing refrigerant air (7, pg 9, paragraph 9, line 1-2); a

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heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); and a defroster drying mechanism exchanging moisture-including air within said defroster with external air (in that moisture-including air is dried and the moisture inherently replaced with external air during the draining process).

9. The air-refrigerant cooling apparatus according to claim 7, wherein said defroster drying mechanism includes: a suction pipe disposed at a position experiencing a relatively low pressure within a pipe system provided for said air-refrigerant cooling apparatus to communicate with the outside of said pipe system (first air circuit, pg. 18, paragraph 26, line 9-11), and a discharge pipe disposed at a position experiencing a relatively high pressure within said pipe system to communicate with the outside of said pipe system (drain, 21).

With regards to claim 10, Satoshi discloses: A transport apparatus comprising: an air-refrigerant cooling apparatus including: a compressor compresses refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said

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refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12); and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1).

11. A transport apparatus comprising: an air-refrigerant cooling apparatus including: a compressor compresses refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); and a defroster drying mechanism exchanging moisture-including air within said defroster with external air (in that moisture-including air is dried and the moisture inherently replaced with external air during the draining process).

With regards to claim 12, Satoshi discloses: a method for operating an air-refrigerant cooling apparatus including: a compressor compressing refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12); and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1), said method comprising: placing said air-refrigerant cooling apparatus into selected one of a plurality of operation modes including a cooling operation mode for cooling said cooled chamber (default, pg. 16, paragraph 23, line 2-5), and a defrosting mode for defrosting said defroster (pg. 18, paragraph 27, line 1-4); in response to said air-refrigerant cooling apparatus being placed into said cooling operation mode, opening valves disposed on an inlet and outlet of said cooled chamber (dampers, 16,17), and closing a valve disposing in said defrosting bypass line (15); and in response to said air-refrigerant cooling apparatus being placed into said defrosting

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operation mode, closing said valves disposed on said inlet and outlet of said cooled chamber (dampers, 16,17), and opening said valve disposing in said defrosting bypass line (15), with a motor (M) for driving said compressor and said expansion turbine operated at a rotational speed lower than that for said cooling operation mode (capable of) (see fig. 1).

With regards to claim 14, Satoshi discloses: a device measuring a pressure in said defroster, and said method further comprising: switching said air-refrigerant cooling apparatus from said cooling operation mode to said defrosting operation mode in response to said measured pressure (pg. 17, paragraph 24, line 1-5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al. in view of Wallace (4,483,153).

With regards to claim 5, Satoshi discloses all of the limitations of claims 1 & 4 except for: a defroster drying mechanism including a fan discharging air within said defroster.

The general concept of providing a fan in a defrosting mechanism falls within the realm of common knowledge as an obvious mechanical expedient, and this is well known in the art as illustrated by Wallace (see abstract, line 4-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a defroster drying mechanism which includes a fan discharging air within said defroster, because a flow of warm dry air will defrost and dry the area more quickly than a static warming.

With regards to claim 8, Satoshi discloses all of the limitations of claim 7 except for: a defroster drying mechanism including a fan discharging air within said defroster.

The general concept of providing a fan in a defrosting mechanism falls within the realm of common knowledge as an obvious mechanical expedient, and this is well known in the art as illustrated by Wallace (see abstract, line 4-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a defroster drying mechanism which includes a fan discharging air within said defroster, because a flow of warm dry air will defrost and dry the area more quickly than a static warming.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al..

With regards to claim 13, Satoshi discloses an air-refrigerant cooling apparatus further including a heat exchanger bypass pipe bypassing said heat exchanger to introduce said refrigerant from said compressor to said expansion turbine (in one embodiment, see fig. 2), and said method further comprising: opening a valve (23) disposed in said heat exchanger bypass pipe (see fig. 2) when said air-refrigerant cooling apparatus is placed into said defrosting operation mode. Satoshi fails to disclose: closing a valve introducing said refrigerant air discharged from said compressor into said heat exchanger.

The general concept of providing a valve to close off a passage way near a bypass is old and well known in the art, as illustrated by the damper valves in Satoshi, near the cooling room bypass (see fig. 1). It would have been obvious to one having ordinary skill in the art at the time of invention to provide a valve at the heat exchanger bypass and close the valve introducing said refrigerant air discharged from said compressor into said heat exchanger, because it would increase the temperature of the flow of air to the defroster.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHANIE MCLAREN whose telephone number is (571) 270-7127. The examiner can normally be reached on Monday - Friday 9:00-6:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz F. Jules can be reached on (571) 272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SDM/

12/11/08

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744